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09/600,732	07/20/2000	GEORGES SMITS	TIENSE RAFF.	8993

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EXAMINER

CHUNDURU, SURYAPRABHA

ART UNIT	PAPER NUMBER
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1637

DATE MAILED: 07/23/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/600,732

Applicant(s)

SMITS ET AL.

Examiner

Suryaprabha Chunduru

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 25 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 65-97 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 65-97 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Applicants' response to the office action (Paper NO. 18) filed on May 19, 2003 has been entered and considered.
2. Claims 65-97 are pending.

***Response to arguments***

3a. Applicants' amendment with reference to the rejection under 35 USC 112 second paragraph regarding the recitation of "and / or", the rejection is withdrawn in view of the amendment.

3b. The following is the rejection made in the previous office action under 35 USC 112, second paragraph:

Claims 65-97 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The instant claim 65 recites "partially or wholly falls outside conventional ones" which is unclear and indefinite because it is unclear what the outside conventional period refers to (that is, are there any outside periods that are included other than the said periods recited in the instant claim 65). Further the term conventional period is a relative term and according to the specification on page 14, "conventional climatological temperature conditions for growing and processing is meant to a period of less than 220 consecutive days immediately preceding the end of the processing of the roots, low temperature conditions have occurred which trigger the FEH gene in chicory roots to a significant extent". It is not clear whether the conventional period is meant to clarify inclusion of low temperatures and inclusion of triggering FEH gene.

***Response to arguments :***

Applicants arguments with reference to the above rejection, have been fully considered and found not persuasive. Applicants argue that the instant invention is drawn to an improvement over conventional processes and according to the instant invention chicory roots are processed non-conventionally. The meets and bounds of the instant claim 65 are not clear because instant claim 65 recites a range of growing seasons and which implies that chicory could be seeded any day in a year and does not exclude any day of the year. Further the instant amended claim 65 does not recite the limitation "non-conventionally" and hence this limitation is not in the claim 65. As stated in MPEP 2145, "Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims". In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993), the instant independent claims do not recite this limitation and specification is not be read into the claims. Further the recitation of partially falls out side conventional seeding indicates that the method comprises conventional process. Hence the meets and bounds of the claims are unclear and the rejection is maintained herein.

4. The following is the rejection made in the previous office action under 35 USC 103(a):

A. Claim 65-78, and 89-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (USPN. 4,613,377) in view of Van Den Ende et al. (Plant Physiol. Vol. 149: 43-50, 1996).

Yamazaki et al. teach a method for processing of chicory inulin from chicory roots through conventional manufacturing techniques, wherein Yamazaki et al. disclose that the source material for the process are tubers of Jerusalem artichoke (see column 11, lines 62-66); grown in appropriate regions under proper climatological temperature (grows well in colder conditions, even in waste lands) (see column 12, lines 3-9). Yamazaki et al. also discloses that the inulin

could also be derived in similar fashion and could be efficiently produced and harvested in late October and ideally should be processed within a few months (see column 12, lines 21-27); obtaining partial or substantially complete hydrolysis product of inulin (see column 11, lines 62-66); the method of extracting inulin (40%-70% by weight) further comprises extraction with hot water and refining inulin by filtering and cation-exchange (see column 11, lines 1-49); production of fructooligosaccharides from inulin (see column 10, lines 36-56); fructooligosaccharides containing about 0-100% by weight of monosaccharides (see column 10, lines 51-56). However, Yamazaki did not teach the periods of seeding/growing/processing includes no triggering or production of fructan exohydrolase gene in chicory roots.

Van Den Ende et al. teach a process for synthesizing fructan (inulin) from chicory roots wherein Van Den Ende et al. disclose that (i) the source material for the process are roots of chicory grown in appropriate regions and processed under proper climatological temperature which has not triggered fructan exohydroxylase (FEH) in chicory roots (see page 44, column 1, paragraphs 1-4, page 47, column 1, paragraph 2); (ii) chicory roots were grown for a period of at least 150 days- 180 days and the period selected from periods ranging from June 1, July 26<sup>th</sup> to November 3<sup>rd</sup>, October 4<sup>th</sup> to October 25<sup>th</sup>, September 13<sup>th</sup> to December 6<sup>th</sup> (see page 44, column 1, paragraph 4) ; (iii) chicory roots stored at +1<sup>0</sup> C and analyzed at regular intervals (at least once a week) (see page 44, column 1, paragraph 4) and (iii) inulin was obtained with a standard grade chicory insulin with degree of polymerization (DP) ranging from 6-13 (page 45, column 1, paragraphs 1-4).

Therefore, it would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made, to modify a process for processing chicory roots for

manufacturing inulin as taught by Yamazaki et al. with the method of growing and harvesting chicory roots as taught by Van Den Ende et al. to achieve expected advantage of developing a process for manufacturing chicory inulin from chicory roots under proper climatological temperatures because Van Den Ende et al. states that "seasonal changes in the biochemistry of fructan storing organs has been largely focused on the examination of changes in the stored carbohydrates. The observed changes in carbohydrate concentrations five-fold increase in fructose concentration) very well correlate with a breakdown of high DP fructans. The shift from high DP fructans from low DP fructans could be due to the action of FFT using low molecular weight carbohydrates as acceptors (see page 47, column 2, paragraph 2, and page 48, column 2, paragraph 2). An ordinary practitioner would have been motivated to combine the method of Yamazaki et al. with the method of Van Den Ende et al. by incorporating the proper climatological conditions which partially or wholly falls outside conventional seeding and growing conditions in order to achieve the expected advantage of developing an improved process of preparing chicory inulin.

B. Claims 79-88 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (USPN. 4,613,377) in view of Van Den Ende et al. (Plant Physiol. Vol. 149: 43-50, 1996) as applied to claims 65-78, 89-97 above, and further in view of Van Loo (USPN. 5,660,872).

Van Loo et al. teach a method for producing inulin free with low molecular weight polysaccharides (sugars) wherein Van Loo et al. disclose that the method comprises isolation of inulin from chicory roots with hot water to obtain aqueous solution of inulin, purification of inulin followed by concentrating the inulin solution by partial removal of water (see column 11, lines 47-62); the method also comprises obtaining inulin free of mono-and disaccharides, drying

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inulin to a particulate form (see column 12, lines 1-67, column 13, lines 1-17). Van Loo et al. further discloses obtaining inulin free of low molecular weight polysaccharides with DP greater than 5 (column 5, lines 5-44).

Yamazaki et al. teach a method for processing of chicory inulin from chicory roots through conventional manufacturing techniques, wherein Yamazaki et al. disclose that the source material for the process are tubers of Jerusalem artichoke (see column 11, lines 62-66); grown in appropriate regions under proper climatological temperature (grows well in colder conditions, even in waste lands) (see column 12, lines 3-9). Yamazaki et al. also discloses that the inulin could also be derived in similar fashion and could be efficiently produced and harvested in late October and ideally should be processed within a few months (see column 12, lines 21-27); obtaining partial or substantially complete hydrolysis product of inulin (see column 11, lines 62-66); the method of extracting inulin (40%-70% by weight) further comprises extraction with hot water and refining inulin by filtering and cation-exchange (see column 11, lines 1-49); production of fructooligosaccharides from inulin (see column 10, lines 36-56); fructooligosaccharides containing about 0-100% by weight of mono saccharides (see column 10, lines 51-56).

Van Den Ende et al. teach a process for synthesizing fructan (inulin) from chicory roots wherein Van Den Ende et al. disclose that (i) the source material for the process are roots of chicory grown in appropriate regions and processed under proper climatological temperature which has not triggered fructan exohydroxylase (FEH) in chicory roots (see page 44, column 1, paragraphs 1-4, page 47, column 1, paragraph 2); (ii) chicory roots were grown for a period of at least 150 days- 180 days and the period selected from periods ranging from June 1, July 26<sup>th</sup> to

November 3<sup>rd</sup>, October 4<sup>th</sup> to October 25<sup>th</sup>, September 13<sup>th</sup> to December 6th (see page 44, column 1, paragraph 4); (iii) chicory roots stored at +1<sup>0</sup> C and analyzed at regular intervals (at least once a week) (see page 44, column 1, paragraph 4) and (iii) inulin was obtained with a standard grade chicory insulin with degree of polymerization (DP) ranging from 6-13 (page 45, column 1, paragraphs 1-4).

However, neither Yamazaki et al. nor Van Den Ende et al. teach the production of inulin free of monomeric saccharides, dimeric saccharides and oligofructose.

Van Loo et al. teach a method for producing inulin free with low molecular weight polysaccharides (sugars) wherein Van Loo et al. disclose that the method comprises isolation of inulin from chicory roots with hot water to obtain aqueous solution of inulin, purification of inulin followed by concentrating the inulin solution by partial removal of water (see column 11, lines 47-62); the method also comprises obtaining inulin free of mono- and disaccharides, drying inulin to a particulate form (see column 12, lines 1-67, column 13, lines 1-17). Van Loo et al. further discloses obtaining inulin free of low molecular weight polysaccharides with DP greater than 5 (column 5, lines 5-44).

Therefore, it would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made, to modify a process for processing chicory roots for manufacturing inulin as taught by Yamazaki et al. with the method of growing and harvesting chicory roots as taught by Van Den Ende et al. and the method of producing polydispersed saccharides as taught by Van Loo et al. to achieve expected advantage of developing a process for manufacturing improved Grade chicory inulin from chicory roots under proper climatological temperatures and because Van Den Ende et al. states that "seasonal changes in the biochemistry



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of fructan storing organs has been largely focused on the examination of changes in the stored carbohydrates. The observed changes in carbohydrate concentrations (five-fold increase in fructose concentration) very well correlate with a breakdown of high DP fructans. The shift from high DP fructans from low DP fructans could be due to the action of FFT using low molecular weight carbohydrates as acceptors (see page 47, column 2, paragraph 2, and page 48, column 2, paragraph 2). Further, Van Loo et al. states that "the degree of polymerization (DP) has direct effect on the solubility of inulin and varies according to the conditions of harvesting chicory roots and saccharides comprise a DP greater than 2 would result in coloration, difficulty in solubility and crystallize at temperatures below 65<sup>0</sup> C" (see column 1, lines 55-67, column 2, lines 1-22). An ordinary practitioner would have been motivated to combine the method of Yamazaki et al. with the method of Van Den Ende et al. by incorporating the proper climatological conditions and production of inulin free of polydispersed saccharides in order to achieve the expected advantage of developing a method for production of improved grade inulin.

***Response to arguments:***

With reference to the above rejections made in the previous office action under 35 USC 103(a), Applicants' arguments have been fully considered and found not persuasive. Applicants' particular argument that the instant invention is drawn to an improvement over conventional processes and according to the instant invention chicory roots are processed "non-conventionally" is fully considered and found not persuasive. The instant claim 65 recites a range of growing seasons and which implies that chicory could be seeded any day in a year and does not exclude any day of the year. Further the instant amended claim 65 does not recite this limitation and hence the limitation "non-conventionally" is not in the claim 65. As stated in

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MPEP 2145, "Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims". In *re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993), the instant independent claims do not recite this limitation and specification is not be read into the claims.

Applicants' argue that Yamazaki et al. teach a conventional cultivation of chicory roots including harvesting late October. This argument is fully considered, however the range of cultivating periods recited in the instant claim 65 is broad and does not exclude any day in a year. The teachings of Yamazaki et al. falls within the broad limitations recited in the instant claim 65. Further Applicants' argue that there is no teaching or suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.1992). In this case, specific motivation is provided by the teachings of Yamazaki et al. (USPN. 4,613,377) in view of (Van Den Ende et al. (Plant Physiol. Vol. 149: 43-50, 1996) and Van Loo (USPN. 5,660,872). An ordinary practitioner would have motivated to develop an improved method by combining the teachings to increase purity and yield of inulin from chicory roots. Therefore, the rejections are maintained herein.

#### ***Conclusions***

No claims are allowable.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

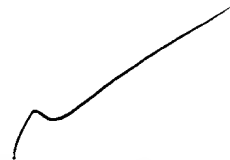
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suryaprabha Chunduru whose telephone number is 703-305-1004. The examiner can normally be reached on 8.30A.M. - 4.30P.M, Mon - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 703-308-1119. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and - for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

  
Suryaprabha Chunduru  
July 21, 2003

  
JEFFREY FREDMAN  
PRIMARY EXAMINER